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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,602	02/11/2002	Bradley W. Smith	14181	4831
21552	7590	05/12/2005	EXAMINER	
MADSON & METCALF GATEWAY TOWER WEST SUITE 900 15 WEST SOUTH TEMPLE SALT LAKE CITY, UT 84101			GORMAN, DARREN W	
			ART UNIT	PAPER NUMBER
			3752	
DATE MAILED: 05/12/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/074,602

Applicant(s)

SMITH ET AL.

Examiner

Darren W Gorman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 23-35 is/are pending in the application.
- 4a) Of the above claim(s) 28-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-13,17-21 and 23-27 is/are rejected.
- 7) ☒ Claim(s) 2-4 and 14-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/21/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 21, 2004 has been entered.

Election/Restrictions

2. Claims 28-35 were withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was formally affirmed **without** traverse in the reply filed on July 8, 2003.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claims 26 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 26, "the exhaust gas" lacks proper antecedent basis.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 5-9, 11, 13 and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas, USPN 6,164,383, in view of Smith et al., USPN 6,371,213 and Nichols et al., USPN 3,972,373.

Thomas discloses a modular engine compartment fire detection and extinguishing system (100) for vehicles comprising, a detector (160, 170, 175) for detecting a fire within an engine compartment of a vehicle, a trigger (200) electrically coupled to the detector to generate an initiation signal once the detector detects a fire in the engine compartment (see Figure 1), wherein the trigger comprises a first power source (Battery B) and a second power source (capacitors C-1a and C-2a) positioned proximal to a switch (202), wherein the first power source is coupled to the second power source such that the second power source remains operable when the first power source fails (see Figure 3; and column 4, lines 48-54), the switch coupled to the power source and the detector, the switch allowing an initiation signal to flow from the power source to a fire extinguisher (110) (see Figure 1), and a modular distribution line (132) having one end connected to and in fluid communication with the fire extinguisher and the other end connected to and in fluid communication with a nozzle (131) for dispersing a dry powdered fire suppressant within the engine compartment (see column 2, lines 9-15, column 3, lines 13-28, and

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Figure 1). Thomas also discloses the fire extinguisher as comprising a propellant contained under pressure electrically coupled to the trigger to receive the initiation signal, however Thomas does not disclose the fire extinguisher as being a “gas generant” fire extinguisher comprising a housing that stores gas generant and fire suppressant, the gas generant being stored proximate to a bottom end of the housing. Thomas also does not disclose the modular distribution line comprising a fastener on each end, such that the fasteners allow modular distribution lines to be removably connected to a manifold, the nozzle, and each other by way of a coupler. Further, Thomas does not teach a manifold in fluid communication with the fire extinguisher to allow a flow of exhaust gas exiting the extinguisher to enter one or more distribution lines to disperse fire suppressant throughout the engine compartment.

Smith et al. teaches a gas generant fire extinguisher cylinder (see Figure 7) electrically coupled to a trigger (see Figure 9) to receive an initiation signal, the fire extinguisher cylinder comprising a housing (270, 273, 275, 304, 308) that stores gas generant (302) and fire suppressant (68), the gas generant being stored in one end of the housing, that end of the housing being a “bottom end” should the cylinder be mounted vertically with the gas generant end facing down (see Figure 9). NOTE: Based on the structure shown by Smith et al., there is nothing that precludes a user from mounting the cylinder in such an orientation where the gas generant would be facing down thereby locating the gas generant in a “bottom end of the housing”, since the “driver assembly” (264) as shown in Figure 7 would perform its intended function of rapidly expelling the fire suppressant when the cylinder is mounted in any possible user-selected orientation.

Nichols et al. teaches a fire extinguishing system for a vehicle engine compartment, which employs a fire suppressant distribution manifold (54) in fluid communication with a fire extinguisher cylinder (10), the manifold allowing the flow of fire suppressant to enter one or more distribution lines (24) to disperse the fire suppressant throughout the engine compartment (see Figures 2 and 5). Nichols also shows modular distribution lines having fasteners (collar-type) at each end thereof, which allow the distribution lines to be connected to the manifold, a nozzle (32), or each other by way of a quick-disconnect coupler (14,16,34) (see Figures 4 and 5), thereby making the fire extinguishing system "economical in cost and adaptable to existing vehicles as well as newly constructed vehicles" (see column 2, lines 28-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the fire extinguisher cylinder in the modular engine compartment fire detection and extinguishing system disclosed by Thomas, for the gas generant fire extinguisher cylinder, as taught by Smith et al., in order to more rapidly extinguish the fire or source of flame, especially in the event of a ruptured fuel line in an automotive vehicle.

Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include fasteners, as taught by Nichols et al., at each end of the distribution line of Thomas, for allowing removable connection of the distribution line to a distribution manifold, a nozzle, or each other by way of a coupler, in order to be able to configure and adapt the system into virtually any fire hazard zone, including the countless possible dimensions of different motor vehicle engine compartments that exist. Still further, it would have been obvious to include a distribution manifold, as taught by Nichols et al., with the system of Thomas, in order to allow the system to equally disperse fire suppressant material into

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more than one distribution line for a faster and more widely dispersed extinguishing response in the event of a fire.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas in view of Smith et al. and Nichols et al., as applied to claim 1 above, and further in view of Scofield, USPN 5,207,276.

Thomas, as modified, discloses all of the claimed limitations as recited in claim 1, however the detector of Thomas is not disclosed as a linear temperature sensitive cable.

Scofield teaches a fire extinguishing system using intertwined temperature sensitive wires (39), wherein the wires are coated with plastic insulation with a pre-determined melting point, so that the wires communicate electrically with one another when the plastic insulation melts at the pre-determined temperature, thereby sending an electric signal to actuate the fire suppression system (see Figures 1 and 2; column 1, lines 16-18, and column 6, lines 34-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the detectors as disclosed by Thomas, with the linear temperature sensitive cable, as taught by Scofield, in order to reduce the complexity of the detecting portion of the system, as well as to continuously monitor for the presence of fire along a user-selected pre-determined path so as not to limit detection of a fire condition to discreet sensing zones.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas in view of Smith et al. and Nichols et al., as applied to claim 1 above, and further in view of Sears et al., USPN 5,660,236.

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Thomas, as modified, discloses all of the claimed limitations as recited in claim 1, however the system of Thomas does not expressly teach the interchangeable use of a liquid suppressant and a dry powdered suppressant.

Sears discloses a fire extinguishing cylinder using gas pressure as a propellant to discharge a suppressant material in a fire hazard area, wherein the suppressant material can be either "a suitable dry powder or water" (see column 2, lines 44-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include liquid (i.e. water), as taught by Sears, as another potential fire suppressant for the system of Thomas, as modified, for suppressing a type of fire that is more responsive to a liquid suppressant than a dry suppressant.

9. Claims 23-24, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas in view of Smith et al. and Nichols et al., as applied to claim 13, and further in view of Scofield, USPN 5,207,276.

Thomas, as modified, discloses all of the claimed limitations as recited in claim 13, and also discloses the fire suppressant as being a dry powdered suppressant, the system as performing the function of coating an engine within an engine compartment with the dry powdered fire suppressant carried by exhaust gas from the gas generant fire extinguisher, and wherein the system operates independently of numerous other vehicle systems. However the system does not disclose the detector as a linear temperature sensitive cable.

Scofield discloses a fire extinguishing system using intertwined temperature sensitive wires (39), wherein the wires are coated with plastic insulation with a pre-determined melting

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point, so that the wires communicate electrically with one another when the plastic insulation melts at the pre-determined temperature, thereby sending an electric signal to actuate the fire suppression system (see Figures 1 and 2; column 1, lines 16-18, and column 6, lines 34-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the detectors as disclosed by Thomas, with the linear temperature sensitive cable, as taught by Scofield, in order to reduce the complexity of the detecting portion of the system, as well as to continuously monitor for the presence of fire along a user-selected pre-determined path so as not to limit detection of a fire condition to discreet sensing zones.

10. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas, as modified above and applied to claim 23, and further in view of Sears et al., USPN 5,660,236.

Thomas, as modified, discloses all of the claimed limitations as recited in claim 23, however the system does not expressly teach the interchangeable use of a liquid suppressant and a dry powdered suppressant.

Sears et al. discloses a fire extinguishing cylinder using gas pressure as a propellant to discharge a suppressant material in a fire hazard area, wherein the suppressant material can be either "a suitable dry powder or water" (see column 2, lines 44-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include liquid (i.e. water), as taught by Sears, as another potential fire suppressant for the system of Thomas, as modified, for suppressing a type of fire that is more responsive to a liquid suppressant than a dry suppressant.

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Allowable Subject Matter

11. Claims 2-4 and 14-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darren W Gorman whose telephone number is 571-272-4901. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Scherbel can be reached on 571-272-4901. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Darren W Gorman
Examiner
Art Unit 3752

DWG 5/6/05
DWG
May 6, 2005


STEVEN J. GANEY
PRIMARY EXAMINER
5/6/05